NO ILLUSTRATION AVAILABLE

DD-963, GENERATOR, SHIPS SERVICE GAS TURBINE CONTROL PANEL, DEVICE 19D1

TRAINING CATEGORY:

PROPULSION ENGINEERING (Turbine Control Maintenance)

ORIGINATING AGENCY:

CNET

SECURITY CLASSIFICATION:

Device 19D1 is unclassified.

INTENDED USE:

Device 19D1 is intended to provide training for originally and newly assigned Engineering Division Crews of DD-963 Spruance class ships at the Service School Command, Great Lakes, to gain hands-on experience in performing scheduled and nonscheduled maintenance, and train the technician to effectively troubleshoot the control system. Virtually, every operating condition can be duplicated that could possibly occur to operational equipment without causing severe or permanent damage to the ship's electrical system. This includes casualty malfunctions and emergency situations.

PURPOSE:

This trainer will be the vehicle for trainees to learn appropriate procedures, skills and maintenance techniques of individual and team coordination tasks for the DD-963 Gas Turbine Generator Control system. Tasks include general maintenance operating checks, alarm tests, preventive maintenance, emergency maintenance and isolating malfunctions.

FUNCTIONAL DESCRIPTION:

The training device will be a full size, three-dimensional, Ship's Service Gas Turbine Generator Control Panel, connected to a microprocessor that simulates the operation of the Allison Gas Turbine Generator. All controls and indicators for normal Gas Turbine Generator Control System operation are located on the two (2) front doors of the panel.

The control system provides integrated controls and indicators that initiate and respond to command signals transmitted from the microprocessor. Fault signals, in depicting a control subsystem failure will be inserted and transmitted to the control system.

Panel controls are provided for selection of the operating mode required, demand display, and monitoring each operation. In addition, test circuits for the alarm system are incorporated to provide immediate knowledge of control operating status.

Plug-in Modular Assemblies are located internally in racks for ease of maintenance and calibration.

Two (2) relay assemblies are located internally to provide services requested. Two (2) sets of fuses are located internally on the left side of module rack for protection of the 115 VAC circuit and the + 24 VDC circuit.

Pushbutton switches control the circuits necessary for starting and stopping the SSTG and motoring. Selector switches are used for selection of specific bearing temperature data and stator temperature data.

Meters are used to display the turbine inlet temperature, lube oil header pressure, generator air temperature, generator bearing temperature, generator stator temperature, enclosure temperature, lube oil temperature, engine RPM, turbine vibration, and generator running time.

Indicators are used to display alarm or operational stators for the following situations:

1. Fail to Fire
2. Engine Overspeed
3. Start Over Temperature
4. Underspeed
5. Water Wash Tank Emply
6. Engine Overtemperature
7. Slow Start
8. Excessive Vibration
9. Engine Running
10. DC Power
11. AC Power

Toggle switches are used to control the 115 VAC circuit, VDC circuit, and also for the fuel enrich function and control of the engine enclosure lights.

Faults or faulty cards will be inserted into the device to teach the trainee effective troubleshooting of the control system, recognition of the fault symptom, identification of the responsible circuit, isolation of the defective component or module.

ENVIRONMENTAL CHARACTERISTICS:

1. 0 to plus 60 ° Centigrade
2. 0 to 100% relative humidity
3. Minimum Heat Dissipation

POWER REQUIREMENTS:

115 VAC, 60 Hz, Single-Phase

PUBLICATIONS FURNISHED:

1. Operation/Technical Manuals
2. Planned Maintenance System Publications
3. Microprocessor Documentation

PERSONNEL:

Two (2) Instructors

One (1) Support Personnel

0.5 Field Representatives

CONTRACT IDENTIFICATION:

Manufactured by Ridgeway Electronics, Inc; Augusta, ME under NAVTRASYSCEN Contract No. N61339-80-C-0071.

LOCAL STOCK NUMBER:

6910-LL-C00-5265